

REMARKS

Claims 1-21 are all the claims pending in the application. Claims 16-17 and 20-21 are withdrawn from consideration by the Examiner.

Reconsideration and review of the claims on the merits are respectfully requested.

Allowable Subject Matter

Applicants appreciate the Examiner's statement that Claims 2, 3, 5, 7-9, 11, 13, 15 and 19 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Applicants amend Claim 2 to incorporate the subject matter of Claim 1. Applicants note that Claim 3 was already written in independent form. Entry of the amendment is respectfully submitted. Claims 2, 3, 5, 7-9, 11, 13, 15 and 19 are now allowable based on the Examiner's Office Action and such is respectfully requested.

Claim Rejections - 35 U.S.C. § 103

A. Claims 1, 4 and 18 are rejected under 35 U.S.C. § 103 (a) as assertedly being unpatentable over Applicant's admitted prior art as shown on figures 1-3B and their descriptions on pages 1-9 of the instant application in view of Sonoda et.al. (U.S. Pat. No. 4,258,080) for the reasons given in the Office Action.

B. Claim 6 is rejected under 35 U.S.C. § 103 (a) as assertedly being unpatentable over Applicant's admitted prior art as shown on figures 1-3B and their descriptions on pages 1-9 of the instant application in view of M.O. Aboelfotoh: Binn. Display Res. Conf. Records P62 (1978) for the reasons given in the Office Action.

C. Claim 10 is rejected are rejected under 35 U.S.C. § 103 (a) as assertedly being unpatentable over Applicant's admitted prior art as shown on figures 1-3B and their descriptions on pages 1-9 of the instant application in view of Furuya (Japanese Patent Laid-Open No. 9-295894) for the reasons given in the Office Action.

D. Claim 12 is rejected are rejected under 35 U.S.C. § 103 (a) as assertedly being unpatentable over Applicant's admitted prior art as shown on figures 1-3B and their descriptions on pages 1-9 of the instant application in view of Aoki (Japanese Patent Laid-Open No. 11-3665) for the reasons given in the Office Action.

E. Claim 14 is rejected are rejected under 35 U.S.C. § 103 (a) as assertedly being unpatentable over Applicant's admitted prior art as shown on figures 1-3B and their descriptions on pages 1-9 of the instant application in view of Aoki (U.S. Patent No. 5,993,543) for the reasons given in the Office Action.

Applicants respectfully traverse the rejections in view of Applicants' disclosure and Sonoda, and in view of Applicants' disclosure and the secondary references.

The Examiner recognizes that Applicants' disclosed references fail to teach the volume resistivity of the protective film as claimed. However, the Examiner states that Sonoda discloses

a method on which a metal oxide semiconductor or a conductive material of a desired resistivity can be obtained by controlling the quantity of an unsaturated metal halide. The Examiner concludes that it would have been an obvious modification to someone with ordinary skill in the art to modify the structure as taught by Applicants' admitted prior art to include the volume resistivity as claimed, as suggested by Sonoda, *in order to reduce sputtering effect and reduce driving voltages*. Additionally, the Examiner asserts that discovering an optimum value of a result effective variable involves only routine skill in the art.

Applicants point to the full context in which the Examiner draws out one line from which to base his conclusion. At col. 7, line 49 to col. 8, line 12, Sonoda discloses five advantages of Sonoda's method of *lowering the resistivity* of an n-type metal oxide (See also Sonoda's Title, Abstract, and preamble of Claim 1). Applicants submit that the Examiner's conclusion that Applicants' specific range of volume resistivity is rendered obvious by Sonoda is improper as Sonoda fails to support achieving a *higher volume resistivity*, as in the present invention, by the specific process of controlling the quantity of an unsaturated metal halide to be brought into contact with the metal oxide. Such disclosure in Sonoda teaches away from Applicants' claimed invention.

Furthermore, as previously argued, Sonoda does not disclose, teach or suggest the claim limitation in Claim 1 of the protective film having a volume resistivity of $3.5 \times 10^{11} \Omega\cdot\text{cm}$ or more. On the contrary, Sonoda discloses values for specific resistivity in Tables 1 and 2 nowhere near the order of $10^{11} \Omega\cdot\text{cm}$ or more required in the present invention (See Sonoda, cols. 3-4). The values for specific resistivity of Sonoda would not achieve the benefits of the

present invention. Sonoda teaches away from the present invention by teaching that a resistivity of an n-type metal oxide semiconductor is *lowered* by treating the metal oxide with a metal halide (see Sonoda's Abstract).

Accordingly, neither Sonoda's disclosure or teachings would have been obvious to modify to achieve the present invention.

Regarding the Examiner's cursory comments in view of Applicants' previous arguments, Applicants respectfully request that if such rejection is maintained that the Examiner provide disclosure in Sonoda for teaching, and motivation for achieving, a higher volume resistivity than any value disclosed in Sonoda to render obvious Applicants' claimed volume resistivity of said protective film being $3.5 \times 10^{11} \Omega\text{-cm}$ or more. The Examiner states motivation for achieving Applicants' claimed *higher volume resistivity* range "in order to reduce sputtering effect and reduce driving voltages". However, Applicants submit that the Examiner's comment was not taken from Sonoda's disclosure. Therefore, absent proper motivation from Sonoda to achieve Applicants' claimed volume resistivity range, Applicants also submit that the Examiner is improperly applying hindsight motivation, possibly from Applicants' specification, in the rejection at issue.

The inventors of the present invention found that the volume resistivity and hydrogen atom content are closely related to the discharge delay time of writing and discharge voltage in the PDP, and with defining them in an appropriate range, i.e. the claim limitation in Claim 1 of the protective film having a volume resistivity of $3.5 \times 10^{11} \Omega\text{-cm}$ or more. When the elements of the present invention are achieved, shortening of discharge delay time, lowering of discharge

voltage and improvement of brightness are attained (see page 10, fourth full paragraph; and Fig. 4).

With regard to the Claims 4, 6, 10, 12, 14 and 18, these dependent claims each incorporate the subject matter of independent Claim 1. Accordingly, since Claim 1 distinguishes Sonoda, and the other cited references to M.O. Aboelfotoh, Furuya, Aoki (JP Laid-Open No. 11-3665) and Aoki (U.S. Patent No. 5,993,543) do not make up for the deficiencies of Sonoda, the §103 rejections should be reconsidered and withdrawn.

Accordingly, Applicants respectfully request reconsideration and withdrawal of the rejections under 35 U.S.C. § 103(a).

Conclusion

In view of the above, reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the telephone number listed below.

AMENDMENT UNDER 37 C.F.R. § 1.116
U.S. Application No. 09/904,556

Q65465

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Respectfully submitted,



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